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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HOLLIDAY, JAIME MICHELE	
ART UNIT	**PAPER NUMBER**
2686	

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,698	MIKKOLA, JYRKI	
	Examiner	Art Unit	
	Jaime M. Holliday	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/29/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Finland on June 29, 2001. It is noted, however, that applicant has not filed a certified copy of the 20011400 application as required by 35 U.S.C. 119(b).

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Finland on December 20, 2001. It is noted, however, that applicant has not filed a certified copy of the 20012525 application as required by 35 U.S.C. 119(b).

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Finland on December 26, 2002. It is noted, however, that applicant has not filed a certified copy of the PCT/FI02/00565 application as required by 35 U.S.C. 119(b).

4. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Finland on June 29, 2001. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

5. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Finland on December 20, 2001. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

6. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Finland on June 26, 2002. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

Information Disclosure Statement

7. The information disclosure statement (IDS) submitted on December 29, 2003 has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1, 2 and 10** are rejected under 35 U.S.C. 102(b) as being anticipated by **Saarma et al. (U.S. Patent 6,198,206 B1)**.

Consider **claim 1**, Saarma et al. clearly show and disclose an audio/inertial signal generator coupled to the housing of a pager or cellular phone, wherein an actuator is formed of a material such as a ferroelectric or piezo-material and is mechanically in contact with a body of polymer. In one embodiment the piezo-electric member is assembled to a region of a wall or surface, for example, of a housing. The piezo-electric member is preferably compression-bonded to one or more electroded sheets or to a patterned metal shim or the like. This construction enables the piezo member to be actuated as a single body and engage in vibration or relatively fast changes of state, reading on the claimed, "An integrated radio telephone structure, which radio telephone comprises an audio amplifier and at least one planar element for both a first and a second function, said planar element belonging to an antenna in the radio telephone and the second function being periodic moving of said planar element, for which the structure comprises a piezoelectric element attached to said planar element" (column 2 lines 9-34 and column 3 lines 32-33). It is inherent that the cellular telephone coupled to the generator, reading on the claimed "integrated radio telephone structure," has an audio amplifier incorporated in its structure.

Consider **claim 2**, and **as applied to claim 1 above**, Saarma et al. further disclose circuit elements, that may include audio amplifier, voice or sound generator, or filter/signal processing, may be incorporated in the planar

construction and configured to adapt one or more portions of the signal unit **100** to emit audio sound, or to sense audio or tactile signals, reading on the claimed "piezoelectric element being coupled to an audio amplifier output, whereby said periodic moving of the planar element is generation of sound" (column 10 lines 15-24).

Consider **claim 10**, and **as applied to claim 1 above**, Saarma et al. further disclose The signal actuator **10** generally has a sheet like form and is itself assembled or formed with upper, middle and lower layers. The middle layer includes an electroactive material, such as a piezoceramic material, reading on the claimed "piezoelectric element being made of a ceramic material" (column 4 lines 10-16).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. **Claims 3-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Saarma et al. (U.S. Patent 6,198,206 B1)** in view of **Siwiak et al. (U.S. Patent # 5,410,749)**.

Consider **claim 3**, Saarma et al. clearly show and disclose the claimed invention **as applied to claim 2 above**, and in addition, Saarma et al. clearly disclose the signal unit is a vibrating sheet or beam and is preferably mechanically connected over a major portion of its surface and activated in the attached housing, so that the housing itself forms a novel radiating surface, reading on the claimed, "radiating plane" (column 2 line 65 and column 3 lines 9-12).

However, Saarma et al. do not specifically disclose that the radiating surface has a first and second branch.

In the same field, Siwiak et al. clearly show and disclose a radio communication device comprising a micro-strip antenna having a planar antenna. Siwiak et al. further disclose a conductive shorting element **306** extending through an aperture **313** in the dielectric material **304** between the planar antenna element **302** and the ground plane **314**, the walls of the conductive shorting element forming an aperture **307** extending between the first surface **318** of the planar antenna element and the second surface **324** of the ground plane, reading on the claimed "a radiating plane of said antenna has a first

branch and a second branch to produce two bands, said planar element being the first branch of the radiating plane" (abstract, figure 2 and column 3 lines 35-41).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to divide the radiating surface as taught by Siwiak et al. in the signal unit, reading on the claimed "integrated radio telephone structure," of Saarma et al. so it may more efficiently vibrate, flex, beep or emit audio signals (Saarma et al.; abstract).

Consider **claim 4**, and **as applied to claim 3 above**, Saarma et al. clearly show and disclose the claimed invention except that there is a second branch, which has a piezoelectric element attached to it.

In the same field of endeavor, Siwiak et al. clearly show and disclose first and second feeders **308**, **310**, which may be conductive materials, that extend from the second surface of the planar antenna element through apertures **316**, **312**, respectively, reading on the claimed "a second piezoelectric element which is attached to the second branch of the radiating plane" (figure 2 and column 3 lines 55-57).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a feeder made of conductive materials, reading on the claimed "piezoelectric material," on a segment as taught by Siwiak et al. in the signal unit of Saarma et al. so it may more efficiently vibrate, flex, beep or emit audio signals (Saarma et al.; abstract).

Consider **claim 5**, and **as applied to claim 1 above**, Saarma et al. clearly show and disclose the claimed invention except that the antenna comprises a ground plane.

In the same field of endeavor, Siwiak et al. clearly show and disclose a radio communication device having a microstrip antenna comprising a planar antenna element having first and second major surfaces, and a ground plane coupled to the planar antenna element, reading on the claimed "antenna comprises a separate ground plane, said planar element being the ground plane" (figure 2 and column 1 lines 55-59).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a ground plane as taught by Siwiak et al. in the signal unit of Saarma et al. so it may more efficiently vibrate, flex, beep or emit audio signals (Saarma et al.; abstract).

Consider **claim 6**, and **as applied to claim 5 above**, Saarma et al. clearly show and disclose the claimed invention except that piezoelectric elements are attached to a ground plane at two fixed points.

In the same field of endeavor, Siwiak et al. clearly show and disclose first and second feeders, which may be conductive materials, that extend from the second surface of the planar antenna element and in the ground plane, reading on the claimed "piezoelectric element being attached to the ground plane at a first fixedly-supported end thereof, and the structure further comprises a second

piezoelectric element which is attached to the ground plane at a second fixedly-supported end thereof" (figure 2 and column 3 lines 55-58).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to attach feeders, made of conductive materials, reading on the claimed "piezoelectric material," to a ground plane as taught by Siwiak et al. in the signal unit of Saarma et al. so it may more efficiently vibrate, flex, beep or emit audio signals (Saarma et al.; abstract).

Consider **claim 7**, and **as applied to claim 1 above**, Saarma et al. clearly show and disclose the claimed invention except that the cellular phone comprises a vibration oscillator and that a piezoelectric element is coupled to the oscillator and generates alarm vibration.

In the same field of endeavor, Siwiak et al. clearly show and disclose a radio communication device having a microstrip antenna comprising a planar antenna element having first and second major surfaces, and a ground plane coupled to the planar antenna element. Siwiak et al. further disclose first and second feeders, which may be conductive materials, that extend from the second surface of the planar antenna element and in the ground plane. The first and second feeders are present to electrically couple signals intercepted by the planar antenna element with primary receiver element circuits which comprise a conventional RF amplifier, a local oscillator, a mixer, and associated filters, reading on the claimed "radio telephone comprises a vibration oscillator, a piezoelectric element being coupled to the vibration oscillator, whereby said

periodic moving of the planar element is generation of alarm vibration" (figure 2, figure 5, column 1 lines 55-59, column 3 lines 55-58 and column 3 lines 60-65).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to attach an oscillator as taught by Siwiak et al. to the signal unit of Saarma et al. so it may more efficiently vibrate, flex, beep or emit audio signals (Saarma et al.; abstract).

Consider **claim 8**, Saarma et al. clearly show and disclose the claimed invention **as applied to claim 7 above**, and in addition, Saarma et al. clearly disclose the signal unit is a vibrating sheet or beam and is preferably mechanically connected over a major portion of its surface and activated in the attached housing, so that the housing itself forms a novel radiating surface, reading on the claimed, "radiating plane" (column 2 line 65 and column 3 lines 9-12).

However, Saarma et al. do not specifically disclose that the radiating surface has a first and second branch, wherein a first piezoelectric element is attached to the first branch and a second piezoelectric element coupled to an oscillator is attached to a second branch.

In the same field of endeavor, Siwiak et al. clearly show and disclose a conductive shorting element extending through an aperture in the dielectric material between the planar antenna element and the ground plane, the walls of the conductive shorting element forming an aperture extending between the first surface of the planar antenna element and the second surface of the ground

plane, reading on the claimed "a radiating plane of said antenna has a first branch and a second branch to produce two bands, said planar element being the first branch of the radiating plane." First and second feeders, which may be conductive materials, extend from the second surface of the planar antenna element through apertures, reading on the claimed "the first piezoelectric element being attached to the first branch of the radiating plane." The first and second feeders are present to electrically couple signals intercepted by the planar antenna element with primary receiver element circuits which comprise a conventional RF amplifier, a local oscillator, a mixer, and associated filters, reading on the claimed "piezoelectric element coupled to the vibration oscillator being the second piezoelectric element, which is attached to the second branch of the radiating plane" (figure 2, figure 5 and column 3 lines 35-41, 55-58, 60-65).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to divide the radiating surface, incorporate a feeder made of conductive materials, reading on the claimed "piezoelectric material," with the radiating surface and attach an oscillator as taught by Siwiak et al., to the signal unit of Saarma et al. so it may more efficiently vibrate, flex, beep or emit audio signals (Saarma et al.; abstract).

13. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Saarma et al. (U.S. Patent 6,198,206 B1)** in view of **Mähringer (U.S. Patent # 6,927,732 B2)**.

Consider **claim 9**, and **as applied to claim 1 above**, Saarma et al. clearly show and disclose the claimed invention except that vibrations of planar element is caused by sound waves from outside generating electric signals.

In the same field of endeavor, Mähringer clearly shows and discloses a communication terminal provided with an electromagnetic transmission or receiving antenna, an acoustic converter, preferably housed in a mobile telephone, reading on the claimed "integrated radio telephone." A shaped membrane is incorporated in the surface of a planar antenna to generate sound. The membrane contains a piezo-ceramic layer. Piezo-electrical materials are characterized by a significant interaction between their electrical and mechanical characteristics, and by applying an electrical field mechanical deformations are produced. Mechanical pressure on these materials, however, generates electrical charges. This structure therefore allows sound signals to be picked up, reading on the claimed "periodic moving of the planar element being caused by sound waves coming from outside, whereby the aim of said piezoelectric element is to generate an electric signal corresponding to the sound waves" (abstract, column 2 lines 53-54, 59-60 and column 3 lines 4-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to allow the piezoelectric element to generate electrical charge as taught by Mähringer, in the signal unit of Saarma et al., in order to sense or provide tactile feedback or control (Saarma et al.; abstract).

RAFAEL PEREZ-GUTIERREZ
PRIMARY EXAMINER
9/12/08